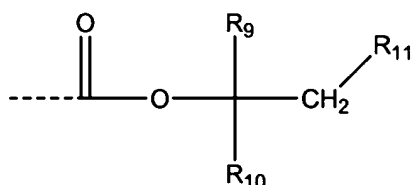


Formula II

wherein n is 0-4; R<sub>5</sub> is hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; R<sub>6</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl; and R<sub>7</sub> and R<sub>8</sub> independently are hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; and wherein R<sub>5</sub> and R<sub>6</sub>, or R<sub>5</sub> and R<sub>7</sub>, or R<sub>6</sub> and R<sub>7</sub> may be joined to form a 5-, 6-, or 7-membered ring; and



Formula III

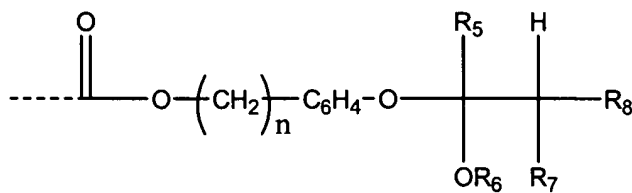
wherein R<sub>9</sub> is hydrogen or lower alkyl; R<sub>10</sub> is lower alkyl; and R<sub>11</sub> is hydrogen or lower alkyl; and wherein a lower alkyl group includes alkyl groups having 1 to 6 linear or 3 to 6 cyclic carbon atoms.

8 ~ 13. (cancelled).

14. (currently amended) The composition of Claim 17 further comprising additives selected from the group consisting of solvents and viscosity aids.

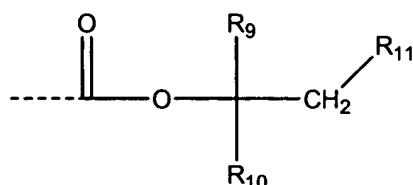
15. (currently amended) The composition of Claim 17 wherein the particulates comprise about 20 to about 70 vol% of the composition.





Formula II

wherein n is 0-4; R<sub>5</sub> is hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; R<sub>6</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl; and R<sub>7</sub> and R<sub>8</sub> independently are hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; and wherein R<sub>5</sub> and R<sub>6</sub>, or R<sub>5</sub> and R<sub>7</sub>, or R<sub>6</sub> and R<sub>7</sub> may be joined to form a 5-, 6-, or 7-membered ring; and



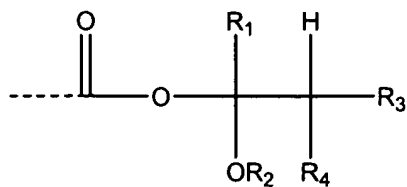
Formula III

wherein R<sub>9</sub> is hydrogen or lower alkyl; R<sub>10</sub> is lower alkyl; and R<sub>11</sub> is hydrogen or lower alkyl; and wherein a lower alkyl group includes alkyl groups having 1 to 6 linear or 3 to 6 cyclic carbon atoms.

19. (currently amended) The composition-printable paste of Claim 18 in the form of a film.

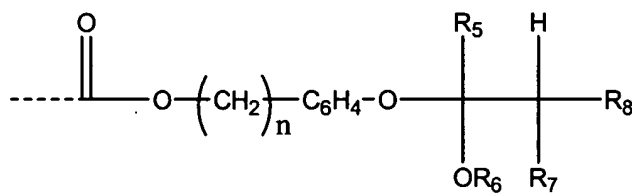
20. (currently amended) An electron field emitting film comprising the composition of Claim 1.  
a positive imageable, particulate-filled photoresist composition that comprises (a) at least one positive imageable photopolymer system, and (b) about 1 to about 70 vol% particulates, wherein the photopolymer system comprises a (meth)acrylate polymer or

copolymer that comprises one or more of the pendant groups as described by Formulae I, II and III, to-wit:



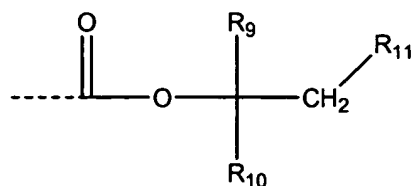
Formula I

wherein  $\text{R}_1$  is hydrogen or  $\text{C}_1\text{-C}_6$  alkyl;  $\text{R}_2$  is  $\text{C}_1\text{-C}_6$  alkyl; and  $\text{R}_3$  and  $\text{R}_4$  independently are hydrogen or  $\text{C}_1\text{-C}_6$  alkyl; and wherein  $\text{R}_1$  and  $\text{R}_2$ , or  $\text{R}_1$  and  $\text{R}_3$ , or  $\text{R}_2$  and  $\text{R}_3$  may be joined to form a 5-, 6-, or 7-membered ring;



Formula II

wherein  $n$  is 0-4;  $\text{R}_5$  is hydrogen or  $\text{C}_1\text{-C}_6$  alkyl;  $\text{R}_6$  is  $\text{C}_1\text{-C}_6$  alkyl; and  $\text{R}_7$  and  $\text{R}_8$  independently are hydrogen or  $\text{C}_1\text{-C}_6$  alkyl; and wherein  $\text{R}_5$  and  $\text{R}_6$ , or  $\text{R}_5$  and  $\text{R}_7$ , or  $\text{R}_6$  and  $\text{R}_7$  may be joined to form a 5-, 6-, or 7-membered ring; and



Formula III

wherein R<sub>9</sub> is hydrogen or lower alkyl; R<sub>10</sub> is lower alkyl; and R<sub>11</sub> is hydrogen or lower alkyl; and wherein a lower alkyl group includes alkyl groups having 1 to 6 linear or 3 to 6 cyclic carbon atoms.

21. (original) A field emission triode comprising the film of Claim 20.

22. (original) A field emission display comprising the film of Claim 20.

23. (original) A lighting device comprising the film of Claim 20.

24. (original) A vacuum electronic device comprising the film of Claim 20.

25~41. (canceled)

42. (currently amended) ~~The composition of Claim 41 wherein the photopolymer system is selected from the group consisting of novolac-diazonaphthoquinone resins.~~ A positive imageable, particulate-filled photoresist composition comprising (a) at least one positive imageable photopolymer system that comprises a novolac-diazonaphthoquinone resin, and (b) about 1 to about 70 vol% carbon nanotubes.

43 ~ 44. (cancelled).

45. (currently amended) ~~The composition of Claim 41~~2 further comprising additives selected from the group consisting of solvents and viscosity aids.

46. (currently amended) ~~The composition of Claim 41~~2 wherein the ~~particulates~~carbon nanotubes comprise about 20 to about 70 vol% of the composition.

47. (currently amended) The composition of Claim 41~~2~~ wherein the ~~particulates~~ carbon nanotubes are less than 100 microns in their longest dimension.

48. (currently amended) The composition of Claim 41~~2~~ wherein the ~~particulates~~ carbon nanotubes are less than 10 microns in their longest dimension.

49. (currently amended) The composition of Claim 41~~2~~ in the form of a printable paste or a film.

50. (currently amended) An electron field emitting film comprising the ~~composition of Claim 41~~.  
a positive imageable, particulate-filled photoresist composition that comprises (a) at least one positive imageable photopolymer system, and (b) about 1 to about 70 vol% carbon nanotubes.

51. (previously presented) A field emission triode, a field emission display, a lighting device, or a vacuum electronic device comprising the film of Claim 50.

52 ~ 66. (cancelled).

67. (previously presented) A lighting device or a vacuum electronic device that comprises an electron field emitting film that comprises a positive imageable, particulate-filled photoresist composition comprising (a) at least one positive imageable photopolymer system, and (b) about 1 to about 70 vol% particulates.

68. (previously presented) The device of Claim 67 wherein the particulates are selected from the group consisting of glass, oxides, carbides, nitrides, metals, metal alloys, metalloids, metalloid alloys, alloys of metals and metalloids, carbon and mixtures thereof.

69. (previously presented) The device of Claim 68 wherein the oxides are selected from the group consisting of aluminum oxides, silicon oxides, tin oxides and mixtures thereof.

70. (previously presented) The device of Claim 67 wherein the particulates are selected from the group consisting of transition metals and their alloys.

71. (previously presented) The device of Claim 70 wherein the transition metals are selected from the group consisting of Al, Cu, Ag, Au, Pt, and Pd.

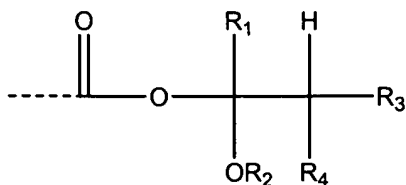
72. (previously presented) The device of Claim 67 wherein the particulates are selected from the group consisting of zinc, thallium, germanium, cadmium, indium, tin, antimony, lead, bismuth, and their alloys.

73. (previously presented) The device of Claim 67 wherein the particulates are selected from the group consisting of alloys of metals and metalloids.

74. (previously presented) The device of Claim 73 wherein the carbon is in the form of carbon nanotubes.

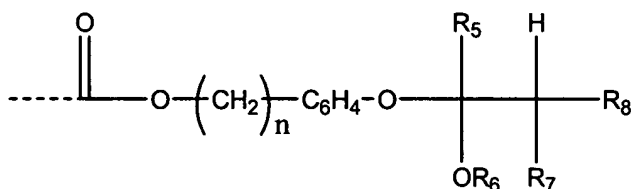
75. (previously presented) The device of Claim 67 wherein the photopolymer system is selected from the group consisting of novolac-diazonaphthoquinone resins.

76. (previously presented) The device of Claim 67 wherein the photopolymer system comprises a (meth)acrylate polymer or copolymer that comprises one or more of the pendant groups as described by Formulae I, II and III, to-wit:



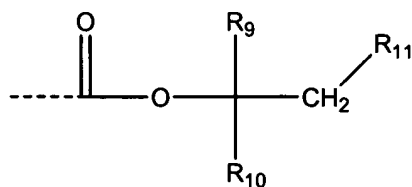
Formula I

wherein R<sub>1</sub> is hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; R<sub>2</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl; and R<sub>3</sub> and R<sub>4</sub> independently are hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; and wherein R<sub>1</sub> and R<sub>2</sub>, or R<sub>1</sub> and R<sub>3</sub>, or R<sub>2</sub> and R<sub>3</sub> may be joined to form a 5-, 6-, or 7-membered ring.



Formula II

wherein n is 0-4; R<sub>5</sub> is hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; R<sub>6</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl; and R<sub>7</sub> and R<sub>8</sub> independently are hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; and wherein R<sub>5</sub> and R<sub>6</sub>, or R<sub>5</sub> and R<sub>7</sub>, or R<sub>6</sub> and R<sub>7</sub> may be joined to form a 5-, 6-, or 7-membered ring.



Formula III



wherein R<sub>9</sub> is hydrogen or lower alkyl; R<sub>10</sub> is lower alkyl; and R<sub>11</sub> is hydrogen or lower alkyl; and wherein a lower alkyl group includes alkyl groups having 1 to 6 linear or 3 to 6 cyclic carbon atoms.

77. (previously presented) The device of Claim 67 wherein the photopolymer system comprises acid labile monomeric components selected from:

- tetrahydropyranyl methacrylate (or acrylate);
- tetrahydropyranyl p-vinylbenzoate;
- 1-ethoxy-1-propyl p-vinylbenzoate;
- 4-(2-tetrahydropyranyloxy)benzyl methacrylate (or acrylate);
- 4-(1-butoxyethoxy)benzyl methacrylate (or acrylate);
- t-butyl methacrylate (or acrylate);
- neopentyl methacrylate (or acrylate);
- 1-bicyclo{2,2,2}octyl methacrylate (or acrylate) and their derivatives;
- 1-bicyclo{2,2,1}heptyl methacrylate (or acrylate) and their derivatives;
- 1-bicyclo{2,1,1}hexyl methacrylate (or acrylate) and their derivatives;
- 1-bicyclo{1,1,1}pentyl methacrylate (or acrylate) and their derivatives; and
- 1-adamantyl methacrylate (or acrylate) and their derivatives.

78. (previously presented) The device of Claim 67 wherein the composition further comprises additives selected from the group consisting of solvents and viscosity aids.

79. (previously presented) The device of Claim 67 wherein the particulates comprise about 20 to about 70 vol% of the composition.

80. (previously presented) The device of Claim 67 wherein the particulates are less than 100 microns in their longest dimension.

81. (previously presented) The device of Claim 67 wherein the particulates are less than 10 microns in their longest dimension.

82. (new) The composition of Claim 7 wherein the particulates are selected from the group consisting of zinc, thallium, germanium, cadmium, indium, tin, antimony, lead, bismuth, and their alloys.

83. (new) The composition of Claim 7 wherein the particulates are selected from the group consisting of alloys of metals and metalloids.

84. (new) The composition of Claim 7 wherein the photopolymer system comprises acid labile monomeric components selected from:

tetrahydropyranyl methacrylate (or acrylate);  
4-(2-tetrahydropyranyloxy)benzyl methacrylate (or acrylate);  
4-(1-butoxyethoxy)benzyl methacrylate (or acrylate);  
t-butyl methacrylate (or acrylate);  
neopentyl methacrylate (or acrylate);  
1-bicyclo{2,2,2}octyl methacrylate (or acrylate) and their derivatives;  
1-bicyclo{2,2,1}heptyl methacrylate (or acrylate) and their derivatives;  
1-bicyclo{2,1,1}hexyl methacrylate (or acrylate) and their derivatives;  
1-bicyclo{1,1,1}pentyl methacrylate (or acrylate) and their derivatives; and  
1-adamantyl methacrylate (or acrylate) and their derivatives.

85. (new) The composition of Claim 7 in the form of a printable paste or a film.

86. (new) An electron field emitting film comprising the composition of Claim 7.

87. (new) A field emission triode, a field emission display, a lighting device, or a vacuum electronic device comprising the film of Claim 86.

88. (new) The printable paste of Claim 18 wherein the particulates are selected from the group consisting of glass, oxides, carbides, nitrides, metals, metal alloys, metalloids, metalloid alloys, metal/metalloid alloys, carbon and mixtures thereof.

89. (new) The printable paste of Claim 88 wherein the metals are selected from the group consisting of Al, Cu, Ag, Au, Pt, and Pd.

90. (new) The printable paste of Claim 88 wherein the carbon is in the form of carbon nanotubes.

91. (new) The printable paste of Claim 18 wherein the photopolymer system comprises acid labile monomeric components selected from:

tetrahydropyranyl methacrylate (or acrylate);

4-(2-tetrahydropyranyloxy)benzyl methacrylate (or acrylate);

4-(1-butoxyethoxy)benzyl methacrylate (or acrylate);

t-butyl methacrylate (or acrylate);

neopentyl methacrylate (or acrylate);

1-bicyclo{2,2,2}octyl methacrylate (or acrylate) and their derivatives;

1-bicyclo{2,2,1}heptyl methacrylate (or acrylate) and their derivatives;

1-bicyclo{2,1,1}hexyl methacrylate (or acrylate) and their derivatives;

1-bicyclo{1,1,1}pentyl methacrylate (or acrylate) and their derivatives; and

1-adamantyl methacrylate (or acrylate) and their derivatives.

92. (new) The printable paste of Claim 18 wherein the particulates comprise about 20 to about 70 vol% of the composition.

93. (new) The printable paste of Claim 18 wherein the particulates are less than 100 microns in their longest dimension.

94. (new) The printable paste of Claim 18 wherein the particulates are less than 10 microns in their longest dimension.

95. (new) The film of Claim 20 wherein the particulates are selected from the group consisting of glass, oxides, carbides, nitrides, metals, metal alloys, metalloids, metalloid alloys, metal/metalloid alloys, carbon and mixtures thereof.

96. (new) The film of Claim 95 wherein the metals are selected from the group consisting of Al, Cu, Ag, Au, Pt, and Pd.

97. (new) The film of Claim 95 wherein the carbon is in the form of carbon nanotubes.

98. (new) The film of Claim 20 wherein the photopolymer system comprises acid labile monomeric components selected from:  
tetrahydropyranyl methacrylate (or acrylate);  
4-(2-tetrahydropyranyloxy)benzyl methacrylate (or acrylate);  
4-(1-butoxyethoxy)benzyl methacrylate (or acrylate);  
t-butyl methacrylate (or acrylate);  
neopentyl methacrylate (or acrylate);  
1-bicyclo{2,2,2}octyl methacrylate (or acrylate) and their derivatives;  
1-bicyclo{2,2,1}heptyl methacrylate (or acrylate) and their derivatives;  
1-bicyclo{2,1,1}hexyl methacrylate (or acrylate) and their derivatives;  
1-bicyclo{1,1,1}pentyl methacrylate (or acrylate) and their derivatives; and  
1-adamantyl methacrylate (or acrylate) and their derivatives.

99. (new) The film of Claim 20 wherein the particulates comprise about 20 to about 70 vol% of the composition.

100. (new) The film of Claim 20 wherein the particulates are less than 100 microns in their longest dimension.

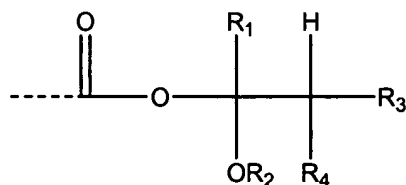
101. (new) The film of Claim 20 wherein the particulates are less than 10 microns in their longest dimension.

102. (new) An electron field emitting film comprising the composition of Claim 42.

103. (new) A field emission triode, a field emission display, a lighting device, or a vacuum electronic device comprising the film of Claim 102.

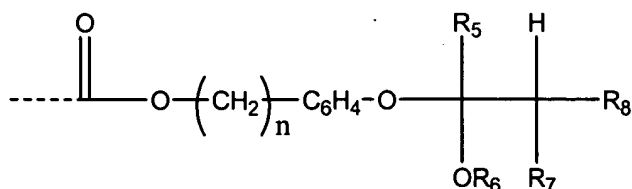
104. (new) The film of Claim 50 wherein the photopolymer system is selected from the group consisting of novolac-diazonaphthoquinone resins.

105. (new) The film of Claim 50 wherein the photopolymer system comprises a (meth)acrylate polymer or copolymer that comprises one or more of the pendant groups as described by Formulae I, II and III, to-wit:



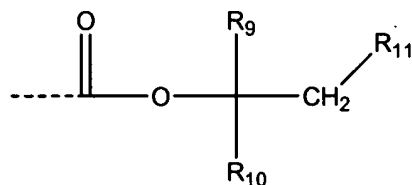
Formula I

wherein R<sub>1</sub> is hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; R<sub>2</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl; and R<sub>3</sub> and R<sub>4</sub> independently are hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; and wherein R<sub>1</sub> and R<sub>2</sub>, or R<sub>1</sub> and R<sub>3</sub>, or R<sub>2</sub> and R<sub>3</sub> may be joined to form a 5-, 6-, or 7-membered ring.



Formula II

wherein n is 0-4; R<sub>5</sub> is hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; R<sub>6</sub> is C<sub>1</sub>-C<sub>6</sub> alkyl; and R<sub>7</sub> and R<sub>8</sub> independently are hydrogen or C<sub>1</sub>-C<sub>6</sub> alkyl; and wherein R<sub>5</sub> and R<sub>6</sub>, or R<sub>5</sub> and R<sub>7</sub>, or R<sub>6</sub> and R<sub>7</sub> may be joined to form a 5-, 6-, or 7-membered ring.



Formula III

wherein R<sub>9</sub> is hydrogen or lower alkyl; R<sub>10</sub> is lower alkyl; and R<sub>11</sub> is hydrogen or lower alkyl; and wherein a lower alkyl group includes alkyl groups having 1 to 6 linear or 3 to 6 cyclic carbon atoms.

106. (new) The film of Claim 50 wherein the photopolymer system comprises acid labile monomeric components selected from:  
 tetrahydropyranyl methacrylate (or acrylate);  
 4-(2-tetrahydropyranyloxy)benzyl methacrylate (or acrylate);  
 4-(1-butoxyethoxy)benzyl methacrylate (or acrylate);  
 t-butyl methacrylate (or acrylate);  
 neopentyl methacrylate (or acrylate);  
 1-bicyclo{2,2,2}octyl methacrylate (or acrylate) and their derivatives;

1-bicyclo{2,2,1}heptyl methacrylate (or acrylate) and their derivatives;

1-bicyclo{2,1,1}hexyl methacrylate (or acrylate) and their derivatives;

1-bicyclo{1,1,1}pentyl methacrylate (or acrylate) and their derivatives; and

1-adamantyl methacrylate (or acrylate) and their derivatives.

107. (new) The film of Claim 50 wherein the carbon nanotubes comprise about 20 to about 70 vol% of the composition.

108. (new) The film of Claim 50 wherein the carbon nanotubes are less than 100 microns in their longest dimension.

109. (new) The film of Claim 50 wherein the carbon nanotubes are less than 10 microns in their longest dimension.